AFCTN Report 94-117

AFCTB-ID 94-119

Technical Publication Transfer

Using:

Gateway Conversion Technology's Data

MIL-STD-1840A

MIL-M-28001B (SGML)
MIL-D-28003 (CGM)

Quick Short Test Report

13 September 1994

Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

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Prepared By
Air Force CALS Test Bed
Wright-Patterson AFB, OH 45433

AFCTB Contact
Gary Lammers
(513) 427-2295

AFCTN Contact
Mel Lammers
(513) 427-2295

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Air Force CALS Test Bed

Notification of Test Results

13 September 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

Gateway Conversion Technology

Identified as follows:

Title:	**Technical Publication Transfer**
Program:	**N/A**
Program Office:	**N/A**
Contract No.:	**N/A**
QSTR No.:	**AFCTB-ID 94-119**

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard:	**Pass**
MIL-STD-1840A Media Format:	**Pass**
MIL-D-28000A IGES:	**N/A**
MIL-M-28001B SGML:	**Pass**
MIL-R-28002A Raster:	**N/A**
MIL-D-28003 CGM:	**Pass**

Formal results with associated disclaimer are documented and available from the AFCTB.

Air Force CALS Test Bed
HQ ESC/AV-2P
4027 Colonel Glenn Highway, Suite 300
Dayton, OH 45431-1672
Phone: 513-257-3085 FAX: 513-257-5881

Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Gateway Technology's interpretation and use of the CALS standards in transferring technical publication data. Gateway used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 94-119

Date of Evaluation: 13 September 1994

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
Judy Rasberry
Gateway Conversion Technology
5000 Aerial Center Parkway
Morrisville, NC 27560
919 319-4652

Data Description:
Technical Manual Test
1 Document Declaration file
1 Document Type Definition (DTD)
1 Text/Standard Generalized Markup Language (SGML) file
149 Computer Graphics Metafiles (CGMs)

Data Source System:

1840

HARDWARE
Hewlett Packard 88780B

SOFTWARE
AFCTN Tapetool v1.2.8

Text/SGML

HARDWARE
Sun Sparc

SOFTWARE
SoftQuad Author/Editor

CGM

HARDWARE
Sun Sparc

SOFTWARE
Interleaf 5.0

Evaluation Tools Used:

MIL-STD-1840A (TAPE)
SUN 3/280
AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

MIL-M-28001 (SGML)
PC 486/50
Exoterica *XGMLNormalizer v1.2e3.2*
Exoterica *Validator v2.0 exl*
Public Domain *sgmls*

MIL-D-28003 (CGM)
HP 735
InterCAP *X-Change v7.82*
ArborText *cgm2draw*
Carberry *Cadleaf*
Island Software *IslandDraw v4.1*
Island Software *IslandDraw v3.0*
SGI Indigo 2
IGES Data Analysis (IDA) *CALSView*
SUN SparcStation 2
Island Software *IslandDraw v4.0*
PC 486/50
Advanced Technology Center (ATC) *MetaCheck R 2.10*
Software Publishing Corporation (SPC) *Harvard Graphics v3.05*
Inset Systems *HiJaak Pro*
Lotus *Freelance v2.01*
Micrografx *Designer v4.0*
Corel *Ventura Publisher*

Standards Tested:
MIL-STD-1840A
MIL-M-28001B
MIL-D-28003

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. A packing list showing all files recorded on the tape was enclosed in the box.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.10* utility. No reported errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The physical structure of the tape meets the ANSI 3.27 and CALS MIL-STD-1840A requirements.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file and data file headers. The CALS tape structure meets the requirements defined in MIL-STD-1840A.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

The AFCTB has several parsers available for evaluating DTD and text files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. These products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings unless specified in the report. Changes to DTD or text files required by each system are not documented in the report.

The text and DTD files were evaluated using the Exoterica *Validator exl* parser. No errors or warnings were issued for text and DTD files.

The text and DTD files were tested using the Exoterica *XGMLNormalizer* parser. No errors or warnings were issued for the text and DTD files.

The text and DTD files were evaluated using McAfee & McAdam's *Sema Mark-it v2.3* parser. No errors were reported before the system ran out of memory.

The text and DTD files were evaluated using the Public Domain *sgmls* parser. There were no reported errors.

The DTD and text files meet the CALS MIL-M-28001B specification.

6. Raster Analysis

No Raster files were included in this evaluation.

7. CGM Analysis

The tape contained 149 CGM files. All files were viewed using at least one application available within the AFCTB. However, due to the number of CGM files submitted, only 10 percent were tested. Only one file, C100, was selected for discussion in the following paragraphs.

The AFCTB has several tools for viewing CGM files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor and indication of CALS capability. All operations were performed using the default settings.

The file was evaluated using ATC's *MetaCheck* with CALS options. This utility reported that the file met the requirements defined in MIL-D-28003.

The file was evaluated using the beta AFCTN *validcgm* utility. This utility reported no errors for the evaluated file.

The file was converted using ArborText's *cgm2draw* utility without reported errors. The resulting file was read into Island Software's *IslandDraw v3.1*, displayed and printed. It was noted that the text fonts used caused some lines of text to touch. The letter "I" was displayed as a very thin line.

According to Carolyn Holland of ArborText, "These problems could be the result of the source file not containing attributes required by the cgm2draw utility."

The file was read into Carberry's *CADLeaf* software and displayed. No errors were reported from the file.

The file was read into IDA's *CALSView*. The file displayed and printed with text touching or overlapping.

An attempt to import the file into the Micrografx *Designer* resulted in many errors, and nothing would display. File C100 had 2107 reported errors but did display. Although text touching was not noted, the placement of the text was outside the defined area in this file.

According to Michael Harrison of Micrografx, "The version of Micrografx Designer used witht his report has been replaced with Designer version 4.1a TE which reads and prints these files successfully."

The file was imported into Lotus' *Freelance* and displayed without reported errors. The file displayed and printed with text overlap.

File C100 was read into Inset Systems' *HiJaak Pro*. Font problems in the title caused text overlap.

The file was read into InterCAP's *X-Change* without a reported error.

The CGM files meet the CALS MIL-D-28003 specification.

8. Conclusions and Recommendations

The physical structure of the tape from Gateway Conversion Technology was correct. The tape could be read properly using the AFCTN *Tapetool* Software without any reported errors or warnings. This portion of the tape meets the requirements defined in MIL-STD-1840A.

The DTD and text files meet the CALS MIL-M-28001B specification.

The CGM files meet the CALS MIL-D-28003 specification.

The tape submitted by Gateway Conversion Technology meets the MIL-STD-1840A requirements.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

```
CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Thu Sep 12 15:31:31 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set052

                                                                 Page: 1
```

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001C001	CGM	F/00080	00800/000084	Extracted
D001C002	CGM	F/00080	00800/000012	Extracted
	<<<<< PART OF LOG FILE REMOVED HERE >>>>>			
D001C149	CGM	F/00080	00800/000058	Extracted
D001G150	DTD	D/00260	02048/000026	Extracted
D001T151	Text	D/00260	02048/000856	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

```
CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Thu Sep 12 15:24:14 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01                                                          4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001              CALS0100010001000000 94250 00000 000000

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

********** Tape Mark **********

########## End of Volume CALS01 ##########

########## End Of Tape File Set ##########

Deallocating /dev/rmt0...

Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Thu Sep 12 15:31:32 1994

MIL-STD-1840A File Set Evaluation Log

File Set: Set052

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: ATT
srcdocid: EMSP
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19930112
dstsys: UNKNOWN
dstdocid: EMSP
dstrelid: NONE
dtetrn: 19940907
dlvacc: NONE
filcnt: C149,G1,T1
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Technical Publication
docttl: NONE

Found file: D001C001
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: EMSP
dstdocid: EMSP
txtfilid: W
figid: 3-1
srcgph: hc890130
doccls: UNCLASSIFIED
notes: NONE

Saving CGM Header File: D001C001_HDR
Saving CGM Data File: D001C001_CGM
```

<<<<< PART OF LOG FILE REMOVED HERE >>>>>

```
Found file: D001C149
Extracting CGM Header Records...
Evaluating CGM Header Records...

srcdocid: EMSP
dstdocid: EMSP
txtfilid: W
figid: 6-3.2
srcgph: hc898940
doccls: UNCLASSIFIED
notes: NONE

Saving CGM Header File: D001C149_HDR
Saving CGM Data File: D001C149_CGM

Found file: D001G150
Extracting DTD Header Records...
Evaluating DTD Header Records...

srcdocid: EMSP
dstdocid: EMSP
notes: NONE

Saving DTD Header File: D001G150_HDR
Saving DTD Data File: D001G150_DTD

Found file: D001T151
Extracting Text Header Records...
Evaluating Text Header Records...

srcdocid: EMSP
dstdocid: EMSP
txtfilid: W
doccls: UNCLASSIFIED
notes: NONE

Saving Text Header File: D001T151_HDR
Saving Text Data File: D001T151_TXT

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.
```

```
No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```

9.4 Other Tape Reading Logs

```
/cals/caps/Bin/read1840A: --- Read declaration file 'D001     ' ---
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hc890130.C.cgm'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hc891010.C.cgm'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hc891340.C.cgm'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hc891690.C.cgm'.

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hcxxx631.C.cgm'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/hcxxx632.C.cgm'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/EMSP.G.dtd'.
/cals/caps/Bin/read1840A: writing data file 'aftb94100/EMSP/W.T.sgm'.
-- declaration file indicates 1 files of type T
-- declaration file indicates 1 files of type G
-- declaration file indicates 0 files of type H
-- declaration file indicates 0 files of type Q
-- declaration file indicates 0 files of type R
-- declaration file indicates 149 files of type C
-- declaration file indicates 0 files of type X
-- declaration file indicates 0 files of type P
-- declaration file indicates 0 files of type Z
```

10. Appendix B - Detailed SGML Analysis

10.1 Exoterica XGMLNormalizer Parser

No reported errors or warnings.

10.2 Exoterica Validator Parser

```
<!-- Capacity points/limits:
      TOTALCAP =129407/200000
      ENTCAP   =16224/200000
      ENTCHCAP =9122/70000
      ELEMCAP  =4768/70000
      GRPCAP   =42208/70000
      EXGRPCAP =384/70000
      EXNMCAP  =832/70000
      ATTCAP   =37536/200000
      ATTCHCAP =516/70000
      AVGRPCAP =17344/70000
      NOTCAP   =160/70000
      NOTCHCAP =313/70000
      IDCAP    =0/70000
      IDREFCAP =0/70000
      MAPCAP   =0/70000
      LKSETCAP =0/70000
      LKNMCAP  =0/70000
-->
```

10.3 Sema Mark-it Log

```
<!--*** file:C:\94119\D001T151. line:9987 pos:475555
Dynamic memory allocation problem:
insufficient space to run MARK-IT. Check system configuration.-->
```

10.4 Public Domain sgmls Log

No reported errors or warnings.

11. Appendix C - Detailed CGM Analysis

11.1 File D001C100

11.1.1 Parser Log MetaCheck

```
MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-93 CGM Technology Software
Execution Date: 09/09/94     Time:  08:59:11

Metafile Examined    : i:\94119\c100.cgm

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

======================== Trace Report ========================

Tracing not selected.

============= CGM Conformance Violation Report ==============

No Errors Detected

========== CALS CGM Profile (MIL-D-28003) Report ============

No profile discrepancies detected.

================ Conformance Summary Report =================

MetaCheck Version 2.10 -- CGM/MIL-D-28003 Conformance Analyzer
Copyright 1988-93 CGM Technology Software
Execution Date: 09/09/94     Time:  08:59:17

Name of CGM under test: i:\94119\c100.cgm
Encoding              : Binary

Pictures Examined    : All
Elements Examined    : All
Bytes    Examined    : All

BEGIN METAFILE string : >IGES<
METAFILE DESCRIPTION  : >CADleaf Plus 4.0, MIL-D-28003/BASIC-<
                        >1<
```

Picture 1 starts at octet offset 472: >Picture1<

Conformance Summary : This file conforms to the CGM specification.
This file meets the CALS CGM Profile (MIL-D-28003).

Summary of Testing Performed and Errors Found:

1 Pictures Tested
3791 Elements Tested
22606 Octets Tested

| No Errors Were Detected |

========== End of Conformance Report ==========

11.1.2 validcgm Log

```
Analysis for file c100.cgm using table table
(0, 1) occurred 1 time
(0, 2) occurred 1 time
(0, 3) occurred 1 time
(0, 4) occurred 1 time
(0, 5) occurred 1 time
(1, 1) occurred 1 time
(1, 2) occurred 1 time
(1, 3) occurred 1 time
(1, 4) occurred 1 time
(1, 5) occurred 1 time
(1, 6) occurred 1 time
(1, 7) occurred 1 time
(1, 8) occurred 1 time
(1, 9) occurred 1 time
(1, 10) occurred 1 time
(1, 11) occurred 1 time
(1, 13) occurred 1 time
(2, 1) occurred 1 time
(2, 2) occurred 1 time
(2, 3) occurred 1 time
(2, 4) occurred 1 time
(2, 5) occurred 1 time
(2, 6) occurred 1 time
(2, 7) occurred 1 time
(3, 1) occurred 1 time
(3, 2) occurred 1 time
(4, 1) occurred 239 times
(4, 4) occurred 351 times
(5, 2) occurred 239 times
(5, 3) occurred 239 times
(5, 4) occurred 239 times
(5, 10) occurred 351 times
(5, 11) occurred 351 times
(5, 12) occurred 351 times
(5, 14) occurred 351 times
(5, 15) occurred 351 times
(5, 16) occurred 351 times
(5, 17) occurred 351 times
(5, 34) occurred 1 time
```

11.1.3 Output CADLeaf

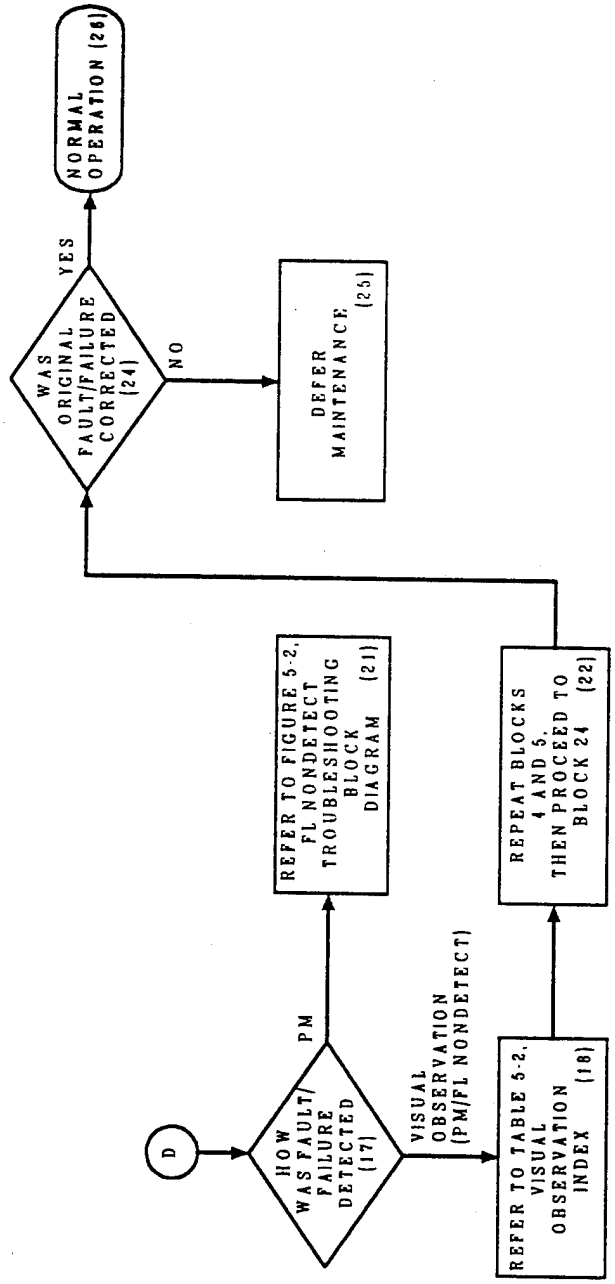

Figure 5-1. Troubleshooting Approach (Sheet 3 of 3)

hc893990
ALHAPR91

11.1.4 Output CALSView

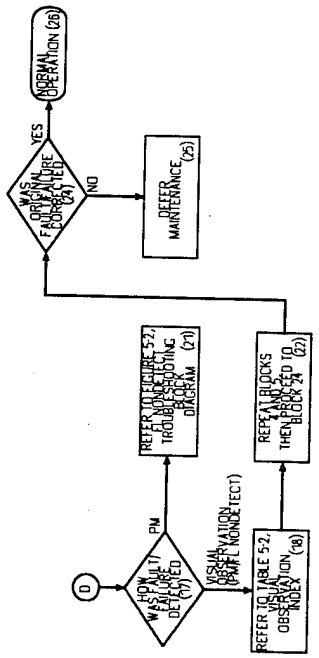

Figure 5-1 Troubleshooting Approach (Sheet 3 of 3)

hs893590
ALHAPRG1

11.1.5 Output Designer

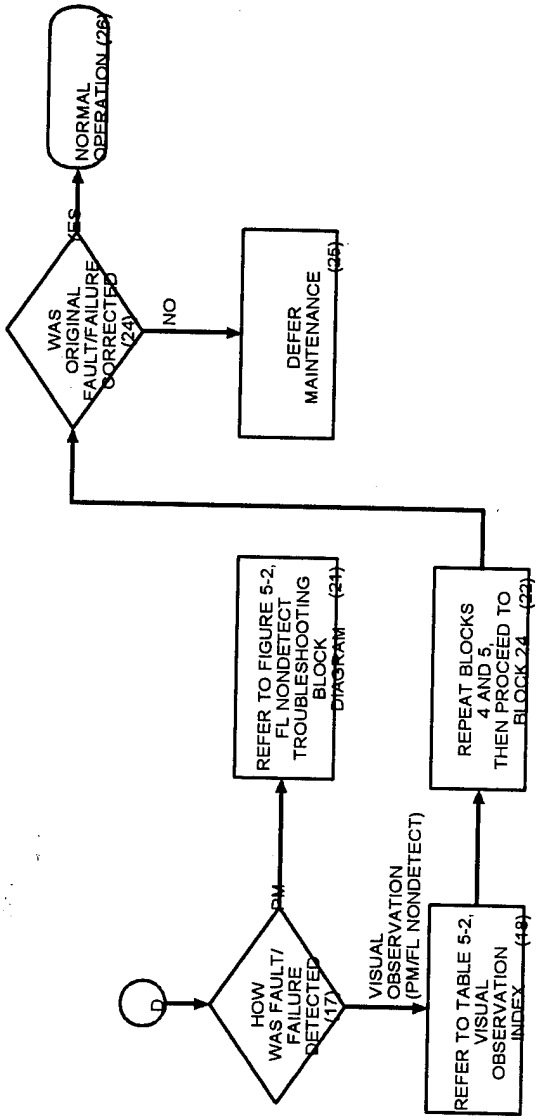

Figure 5-1. Troubleshooting Approach (Sheet 3 of 3)

hc893990
ALHAPR91

11.1.6 Output Freelance

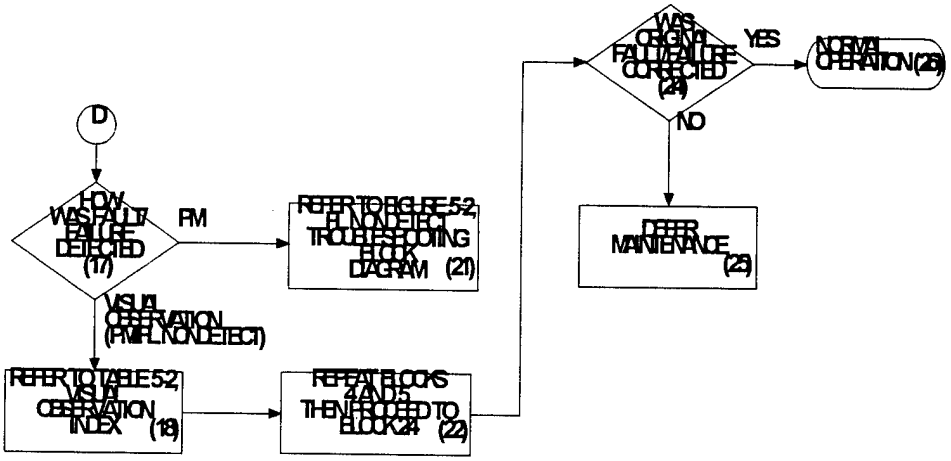

Figure 5-1. Troubleshooting Approach (Sheet 3 of 3)

hn89390
ALHAFR91

11.1.7 Output HiJaak

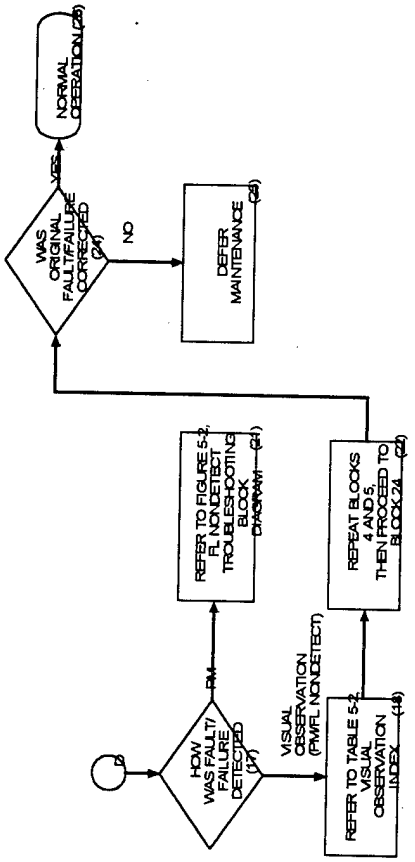

Figure 5-1. Troubleshooting Approach (Sheet 3 of 3)

hc893990
ALHAFR91